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FAY KAPLUN & MARCIN, LLP
150 BROADWAY, SUITE 702
NEW YORK, NY 10038

EXAMINER

JOSEPH, JAISON

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/690,390
Filing Date: October 21, 2003
Appellant(s): DURON ET AL.

Oleg F. Kaplun
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11/15/2007 appealing from the Office
action mailed 05/02/2007.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,236,315	Helms et al.	5-2001
4,355,214	Levy et al.	10-1982

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 10 - 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Levy et al (US Patent 4,335,214).

Regarding claim 10, Levy et al teach a method comprising the step of demodulating a reflection signal (see the signal received from channel 43 via component 41, 45, 34, and 35) into in-phase and quadrature signal (see figure 3, the demodulator, element 36 and 37), filtering the in-phase signal to isolate an in-phase error signal, filtering the quadrature signal to isolate the quadrature error signal (see figure 3, element 31), modulating the in-phase error signal and quadrature error signal to create a feedback signal (see figure 3, element 32), and combining the reflection signal and the feed back signal to cancel at least a portion of echo signals in the reflection signals (see element 34).

Regarding claim 11, which inherits the limitations of claim 10, Levy et al further teach the filtering steps include one of low pass filtering, band pass filtering, and high pass filtering.

Regarding claim 12, which inherits the limitations of claim 10, Levy et al further teach amplifying the feedback signal prior to the combining step (the time domain complex transversal filter has the weight taps which controls the amplitude of the signal).

Regarding claim 13, which inherits the limitations of claim 10, Levy et al further teach converting the in-phase signal and the quadrature signal from an analog signal to digital signal (see figure 3, element 35), and converting the in-phase error signal and the quadrature error signal from the digital signal to analog signal (see figure 3, element 33).

Regarding claim 14, the claimed method including the features corresponding to subject matter mentioned in the rejection of claim 10 is applicable hereto.

Regarding claim 15, which inherits the limitations of claim 14, the claimed method including the features corresponding to subject matter mentioned in the rejection of claim 11 is applicable hereto.

Regarding claim 16, which inherits the limitations of claim 14, Levy et al further teach the combiner element is one of a splitter and a directional coupler (see figure 3, element 34, 43,45).

Regarding claim 17, which inherits the limitations of claim 14, the claimed method including the features corresponding to subject matter mentioned in the rejection of claim 12 is applicable hereto.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helms et al (US Patent 6,236,315) in view of Levy et al (US Patent 4,335,214).

Regarding claim 1, Helms et al teach a system comprising a transmitter element creating an interrogation signal and transmitting the interrogation signal (see figure 2, element 201, 202, 203, and 204) and a receiver element receiving a reflection signal of the interrogation signal and canceling the echo signal in the reflection signal. Helms et al is silent on combining the reflection signal and a feedback signal to cancel at least a portion of radio frequency signals in the reflection. However in analogous art Levy et al teach canceling echo signal in a received signal by combining the reflection signal and a feedback signal to cancel at least a portion of radio frequency signals in the reflection (see figure 3, component 30, Levy et al teach canceling the echo in a received (reflected) signal (output signal of element 45) by combining the received signal and feedback signal (the output of element 33)). Therefore it would be obvious to an ordinary skilled in the art at the time the invention was made to use Levy's echo canceller in Helms system. The suggestion or motivation to do so is no synchronization between the transmitter and receiver of the terminal in which it is incorporated and which lends itself to less complex digital implementation (see column 3, lines 10 –15).

Regarding claim 2, which inherits the limitations of claim 1, Levy et al further teach feedback signal is derived by isolating an error component of the reflection signal (see figure 3 element 30).

Regarding claim 3, which inherits the limitations of claim 2, Levy et al further teach the error component of the reflection signal is isolated in one of an in phase signal and a quadrature signal (see inputs to element 32).

Regarding claim 4, which inherits the limitations of claim 2, Levy et al further teach wherein the error component of the reflection signal is isolated by filtering the reflection signal (see element 31).

Regarding claim 5, which inherits the limitations of claim 4, Levy et al further teach the feedback signal is combined with the reflection signal within an impulse response time of a filtering element which is filtering the reflection signal.

Regarding claim 6, which inherits the limitations of claim 1, Helms et al further teach wherein the reflection signal is reflected by a radio frequency tag (see abstract).

Regarding claim 7, which inherits the limitations of claim 1, Helms et al further teach wherein the feedback signal is derived through one of analog processing and digital processing (see column 1, lines 33 – 65).

Regarding claim 8, the claimed method including the features corresponding to subject matter mentioned in the rejection of claim 2 is applicable hereto.

Regarding claim 9, which inherits the limitations of claim 8, the claimed method including the features corresponding to subject matter mentioned in the rejection of claim 3 is applicable hereto.

5. Claims 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levy et al (US Patent 4,335,214).

Regarding claim 19, which inherits the limitations of claim 14, Levy et al are cited as explained in the above paragraph. Levy et al is silent on having a third filter to filter the feedback signal before input into the combiner element. However, at the time the invention was made, it would be obvious to an ordinary skilled in the art at the time the invention was made to use a filter to reduce the noise in the feedback path.

(10) Response to Argument

With respect to claims 10 – 17

Applicant group claims 10 – 17 together and limit the argument on claim 10 only.

In particular, the applicant argues that *"Nowhere else in Levy is there any mention of reflection signals, yet the Examiner has somehow convinced himself that apart from transmission channel 43, the input line into element 36 also carries a reflection signal. Such a contention is supported by not a single shred of evidence. What is being supplied into element 36 is the output of ADC 35, which in turn receives the output of subtracting circuit 34. How can these signals be viewed as carrying a reflection signal? The Examiner provides no answer. Unless the Examiner can provide some scientific reasoning adequately supporting his apparent assumption that the input signal into element 36 is a reflection signal, Appellants shall continue to insist that Levy does not demodulate a reflection signal into in-phase and quadrature signals."*

Response --- Levy teaches an adaptive echo canceller for a full duplex transmission. Levy further teaches the received signal from transmission channel 43 includes reflection signal (see column 1, lines 30 – 34, further Applicant admitted in page 4 under arguments that "[o]nly one signal can rightfully be regarded in Levy as a reflection signal, namely, the signal reflected back on transmission channel 43"). Therefore Examiner considers the signal received from the transmission 43 as the reflection signal since the received signal includes the reflected signals. Thus Examiner identifies the received signal as the reflection signal. According to the specification, Applicant also identifies the signal received as the reflection signal (see specification paragraph 0017, signal received via antenna 130 and coupler 125). Furthermore, Applicant recites in claim 10 the limitation, "... demodulating a reflection signal into an in-phase signal and quadrature signal..." According to figure 2 of present specification, output signal of the component 150 is demodulated into in-phase and quadrature signals. Therefore, the Applicant clearly considers the signal traveled through the path 125, 140, 145, 150 as the reflection signal. Thus Applicant identifies the input to the in-phase and quadrature demodulator 155I and 155Q as the reflection signal. On the other hand, Levy teaches the reflection signal is received via hybrid coupler 41, band pass filter 42 and passed through component 34 and 35 to in-phase and quadrature demodulator 36 and 37. The signal inputted to component 36 in Levy is equivalent to output of the component 150 in the present application. Therefore, Examiner identifying the input signal to component 36 in Levy's reference as reflection signal is consistent with applicant's description. Furthermore, Levy et al teach a method comprising the

step of demodulating a reflection signal (see the signal received from channel 43 via component 41, 45, 34, and 35) into in-phase and quadrature signal (see figure 3, element 36 and 37), filtering the in-phase signal to isolate an in-phase error signal, filtering the quadrature signal to isolate the quadrature error signal (see figure 3, element 31), modulating the in-phase error signal and quadrature error signal to create a feedback signal (see figure 3, element 32), and combining the reflection signal and the feed back signal to cancel at least a portion of echo signals in the reflection signals (see element 34). Thus Levy teaches all cited limitations. Therefore, the Applicants argument is not persuasive.

With respect to claim 11 – 13, the Applicant make same argument as the argument applied to claim 10, Therefore the same response applied to the argument with respect to claim 10 above is also applied here.

With respect to claim 14, the Applicant make same argument as the argument applied to claim 10, Therefore the same response applied to the argument with respect to claim 10 above is also applied here.

With respect to claim 15 - 19, the Applicant make same argument as the argument applied to claim 10, Therefore the same response applied to the argument with respect to claim 10 above is also applied here.

With respect to claim 1 - 9, the Applicant make same argument as the argument applied to claim 10, Therefore the same response applied to the argument with respect to claim 10 above is also applied here.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



Jaison Joseph
Patent Examiner
Art Unit 2611

Conferees:



Chieh M. Fan, Ph.D.
Supervisory Patent Examiner
Art Unit 2611

CHIEH M. FAN
SUPERVISORY PATENT EXAMINER



Shuwang Liu, Ph.D
Supervisory Patent Examiner
Art Unit 2611

SHUWANG LIU
SUPERVISORY PATENT EXAMINER